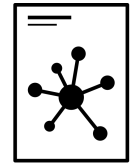









Network Theories & Methods



Course #: MEJO 890 | Class Time: T/Th 12:30-1:45 p.m.. Location: Carroll Hall 338

[Schedule](#) | [Labs](#) | [Sakai Site](#) | [Office Teams](#) | [Assignments](#) | [Final Paper & Presentation](#)

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Course Overview

Individuals, groups, organizations, and even texts and artifacts are connected in ways that form vast networks. Social scientists have long theorized about networks but the analytical tools to empirically study networks have only been available until recently. This course will introduce you to the theoretical, conceptual, and analytical elements of network research. You will learn about network theories and conceptual frameworks emerging in communication research. This course is designed to provide you with both a solid conceptual understanding of network-based theories as well as the analytical skills necessary to gather, structure, and analyze relational data. You will leave this course with the ability to conceptualize social scientific phenomena from a network perspective and be able to collect, analyze, and translate network data.

Based on your research interests and status in the graduate program, you will design a network research project. We will walk through the steps of selecting an appropriate network-based framework, locate or collect network data from applicable sources, and identify the necessary analytical techniques.

Course Objectives

- Gain an understanding of the theoretical and methodological foundations of network theories and methods;
- Become familiar with the philosophies of social network science and various processes of network inquiry;
- Synthesize the theoretical and analytical uses of a network perspective in communication or media research;
- Use the basic principles of social network design, measurement, reasoning, and analysis;
- Recognize the limitations in various methodologies and in specific research studies;
- Build and field a network data collection instrument and develop skills for restructure data to a network format;
- Discuss ethical considerations of network research process;
- Demonstrate the ability to organize, execute, and evaluate a social network analysis research study.

ACEJMC Competencies

The Accrediting Council on Education in Journalism and Mass Communications (ACEJMC) requires that, irrespective of their particular specialization, all graduates should be aware of certain core values and competencies. The full list of competencies is available [here](#). This course is particularly relevant to the following competencies:

- Understand concepts and apply theories in the use and presentation of images and information;
- Apply basic numerical and statistical concepts;
- Apply tools and technologies appropriate for the communications professions in which they work.
- Think critically, creatively and independently;
- Conduct research and evaluate information by methods appropriate to the communications professions in which they work.

Course Design

The conceptual and analytical levels are often blurred in network research. Network research developed from scholars who had relational theories but lacked relational analytic techniques. As the ability to analyze networks developed, the analytical approaches were closely aligned with prior theories. The close connection between the conceptual and analytical levels is often why non-network researchers assume network analysis is purely a method. I have designed this course to expose you to network theories and teach you network analytic techniques. My goal with this course is to blend seminar-style discussion with hands-on labs. As you will see in the schedule below, we discuss research and theories on Tuesdays and apply the key concepts from those readings and theories on Thursday in labs. We will be going between the conceptual and analytical levels often. My hope is that you will be better able to learn the key concepts and theories because of this design.

¹ Please note that regular office hours will start the second week of class (August 26, 2019). Normal office hours will end on Thursday, November 21. After Thanksgiving break, I will have extended office hours by appointment to meet with each student to finalize their papers/projects.

Readings & Software

Required Readings:

Borgatti, S. P., Everett, M. G., & Johnson, J. C. (2013). *Analyzing social networks*. London: Sage.

* Available on [Amazon on \\$17.13](#) | ISBN: 1446247414

Perry, B., Pescosolido, B., & Borgatti, S. (2018). *Egocentric network analysis*. Cambridge: Cambridge University Press.

* Available on [Amazon on \\$34.99](#) | ISBN: 1107579317

Suggested Readings:

Kadushin, C. (2012). *Understanding social networks: Theories, concepts, and findings*. Oxford: Oxford UP.

* Available on [Amazon for \\$19.96](#) | ISBN: 0195379470

Required Open-source Software:

R ([download here](#)) and RStudio ([download free version here](#))

Accessing readings and other scholarly articles: Some of the required readings will be available on Sakai. I will show you where those will be. You must have a campus connection (VPN connection) to access those articles or book chapters online. These links will send you to sources via the university library system.

→ [Google Scholar via UNC library system](#)

→ [Academic Search Premier](#)

Course Standards and Policies

Basic Ground Rules

Please see my list of [ground rules of graduate level classes here](#). You're welcome to offer changes or additions.

Email and Communication

I check email regularly between 7 a.m. and 10 p.m., Monday through Friday. I cannot guarantee an immediate response but will guarantee a response within 24 to 48 hours Monday through Friday. Please treat emails to me as professional correspondence. On Wednesdays and Fridays, I will have limited availability to email as those are my writing days.

Honor Code

All work submitted for this course must be your work. All sources used for information must be properly cited. Students should adhere to the University's Honor Code: [honor.unc.edu](#). You can find a link to this site on Sakai. You will need to visit this website the first week of class and complete the [student module](#). My policy is to turn over any documents that appear to have content from other uncited sources than the author's to the University's Honor Committee.

Student Accommodations

If you require special accommodations to attend or participate in this course, please let me know as soon as possible. This includes physical needs as well as less apparent needs such as testing anxiety. If you need information about accommodations visit the Accessibility Services website at [accessibility.unc.edu](#) or the Learning Center website at <http://learningcenter.unc.edu/ldadhd-services/>.

Diversity

The University of North Carolina does not discriminate in offering access to its educational programs and activities on the basis of age, gender, race, color, national origin, religion, creed, disability, veteran status, sexual orientation, gender identity, or gender expression.

Harassment

We all have the right to our opinions. In the classroom, everyone should feel comfortable expressing his or her opinions. We do not need to agree but we do need to respect others' thoughts. The University does not tolerate harassment. Please support your classmates' and others' right to worship, act, look, and think in their own way. Harassment is a violation of the Honor Code, Title VII of the Civil Rights Act (1964), and Title IX. If you are harassed or feel threatened, please bring it to my attention at an appropriate time or contact the Dean of Students (dos@unc.edu, 919-966-4042).

Technology Policy

Please turn off your cell phone and all other communication devices/applications when you are in class. Your behavior can distract you and others. You are expected to use your laptops to take notes, search the web for class related information, and participate in labs. You are expected to have a usable and charged laptop or similar device at each class to complete in-class assignments, assessments and quizzes. But, this technology use is a privilege; I may ask you to put away your device at times.

Attendance/Absences

Attendance is expected, and you are responsible for all announcements and schedule changes made in class. There is no substitute for attending class, participating, listening, and taking notes or the in-class assessments/quizzes. Attendance will be monitored. If you have more than four absences, your overall grade will be reduced. As a professional courtesy, let me know when you will miss class. If you believe your absence should be excused for a relevant event or religious holiday, please send an email. Absences as a result of family death or health issues will be addressed based on the circumstances. Should you miss a substantial amount of classes, you will be directed to the Registrar's Office for handling the compensation process.

Participation

One goal of graduate courses is to promote peer discussion. I have assembled a selection of readings to serve as the springboard for our weekly discussions. Please keep up with the readings and be prepared for a critical discussion. I will take notes of your participation. This includes actively engaging and asking thoughtful questions.

Grades

The graduate scale (H, P, L, F) is in effect for all assignments for this course. Yes, it's a bit ambiguous, so let me share their description. Please note that my assignments give you the percentage of weight and if you see points, it is just for my internal calculations. I will assign H/P/L/F grades on each assignment. Here is the Graduate School's guidelines:

- **H** - should be reserved for truly outstanding work, and it should be given rarely
- **P** - is the most common grade, and one students should be proud of
- **L** - is a cause for concern
- **F** - Fail

MEJO 890 ASSIGNMENTS²

Grades	%
Engaged Classroom Participation	10%
Discussion Questions (<i>minimum of 10</i>)	15%
Labs (<i>minimum of 10</i>)	25%
Research Design	12.5%
Paper & Presentation	37.5%
Total	100%

1. **Engaged classroom participation (10% of overall grade):** This is a graduate-level course, which means everybody must contribute to the discussions. Please keep up with the readings for each class, prepare questions (see next assignment) you would like to ask, challenge, or disagree with, whatever.
2. **Discussion questions (15% of overall grade):** Prior to class, you must draft three questions from the readings. Your questions must be written to start a discussion in class. Therefore, you should give context to your questions and explain what prompted your questions. Your questions might stem from what the researchers investigated and found, and how that contrasts to what other articles found. Your questions should be broad, not narrowly asking why they studied a specific element. In essence, I (or one of your peers) should not be able to point you to the answer within the readings. You need to consider the broader implications of the research. While, there are no dumb questions, your questions will be assessed for thoughtfulness and articulateness. Your discussion questions will be assessed using [this rubric](#) developed by Nandi, Chang, and Balbo (2009).

Your questions must be posted to Sakai in the appropriate forum 24 hours before class (that is, 12:30 p.m. on the day before a lecture and discussion class). No late questions will be accepted. I will respond to your discussion questions on Sakai only if we do not adequately address it in class. I use the discussion forum on Sakai to make the questions available to the class and have a deadline for the questions, not to start a discussion. You will have 12 opportunities to submit questions but only need to submit 10 times.

3. **Labs (25% of overall grade):** There are 12 labs during the semester but you will only be graded on 10. I have designed these labs for you to become familiar with network analysis software packages using R. You will learn to import data, transform data, pair relational data with attribute data, and calculate some of the most commonly used network measures. I will provide the network data set to you in class and make the files available on Sakai. We will begin part of the labs in class but you may need to finish the lab after class and submit it on Sakai. I will provide detailed instructions and supplemental materials for each lab.
4. **Research Design (12.5% of overall grade):** The weight for each portion below total 12.5% of your overall grade. This assignment is broken into segments to help you complete your study by the end of the semester.
 - a. **IRB Application (1% of overall grade).** If you need to complete an IRB application as part of this course, you will be assessed for this. Please make sure you have completed the necessary training. You can find examples and language for IRB applications for network studies on Sakai. If you do not need to complete an IRB application, I will distribute this assessment elsewhere.
 - b. **Questionnaire Codebook | Interview Questions (5% of overall grade).** You will draft a codebook or protocol for your study. You will be provided example and expected to reflect those examples. A questionnaire codebook must include the variable label, the associated concept/construct, the item wording and necessary programming and formatting, measurement scale, and source for the measure. An interview protocol must

² This is a preview of the assignments. Detailed instructions will be provided on Sakai under the “Assignments” tab.

include general questions and probing questions as well as necessary transition or introduction of stimuli (i.e. network visuals). Examples of codebooks will be provided on Sakai.

- c. **Data Collection Instrument | Protocol (5% of overall grade)**. Once your codebook or interview questions are approved, you will build a data collection instrument or protocol. Depending on the mode of your data collection, you will need to design and test the instrument or protocol. Essentially this assignment takes the codebook or questions and puts it into the form of a survey or interview protocol. You will be granted access to different network instruments I have developed with the understanding any use will be properly cited.
 - d. **Sampling Strategy (1.5% of overall grade)**. The final research design assignment is your sampling strategy. You need to specify the population associated with your RQs/Hs, provide a rationale for the network “bounding” parameters, explain the size and type of sample that will be drawn, justify the sampling procedure (random or nonrandom), and discuss the sampling error.
5. **Research Paper (37.5% of overall grade)**: This is a six-part (not including final paper) assignment worth most of the weight in the course. Each portion below totals 37.5% of your overall grade. This assignment is broken into segments to help you prepare a conference paper by the end of the semester.
- a. **Research Paper Idea(s) (2.5% of overall grade)**: You will pitch three (or one solid idea, if you have my approval) of your best *network* research paper ideas. You need to provide a clear and concise problem statement, how you will address that problem with your research, why it is important to the literature, scholars and/or practitioners, and how this furthers your research agenda. You should also have some idea of how/where you will get the data for each idea. Here is [one source of data](#) and I can provide more if you want. Your research idea(s) should be approximately 300 words total (all three ideas). Here is a [framework to guide you](#) (please note you’re basically doing the problem statement but should try to do the background, research gaps, and study aims).
 - b. **“Guerilla” Lit Review (5% of overall grade)**: You need to draft an intro based on the research idea I give you the greenlight to move forward with and add five to seven pages of a literature review. To be clear, this should include an introduction and a rough literature review. Neither needs to be perfect but there should be a clear problem statement, rationale, and significance of your study in the introduction. The literature review should have a coherent structure and the outline of a theoretical framework. I need to be able to discern the theory/theories you are using and the concepts you will be operationalizing later in the development. You should use at least ten scholarly, peer-reviewed sources. More details will be provided.
 - c. **RQs/Hypotheses (2.5% of overall grade)**: Research questions or hypotheses. How will you apply the theory/theories you’ve explored in your paper? Or, what do you predict, based on prior research, will happen with network variables? You should have clearly identifiable variables (independent & dependent).
 - d. **Proposal (10% of overall grade)**. Here you will bring together my feedback from your “guerilla” literature review and RQs/Hs to put together a proposal. You will need to have an introduction, an improved literature review, and refined RQs/Hs. The introduction needs to have a clear problem statement, rationale for the study, and argument for the significance of your research. The literature review must have a coherent structure and flow that presents the theory and concepts used to inform your RQs and Hs.
 - e. **Methods (2.5% of overall grade)**: You need to write a complete methods section that mirrors that of a published manuscript. This should include a description of the participants or sample, the sampling strategy used, the measures included in your instrument, and the analytic procedures used.
 - f. **Results (5% of overall grade)**: You now need to write-up what you found. That is, you should address your research questions or answer your hypotheses. Please follow APA style for reporting results.
 - g. **Final Paper & Presentation (10% of overall grade)**: This is your masterpiece (...that is in progress because research is always a work in progress)! Your final paper should be a culmination of your entire semester’s work, incorporate the comments I made about each of the above components, and have a discussion and conclusion section. To be clear, the final paper must be a much improved version of the assignments from throughout the semester. The final paper you submit should be of such quality that it would be accepted to an academic conference. The writing must follow APA style, have very few grammatical errors, and absolutely no misspellings. [Here is a more detailed assignment sheet](#) that includes the rubric I’ll use to grade your final paper.

Schedule

(Please note the syllabus and schedule are subject to change. Here is a link to the [university's academic calendar](#).)

Date	Day	Topic, Readings & Labs	Due Dates
8/20	1	<p>Meet & Greet Course Overview Review Syllabus</p> <p><i>Agenda:</i> Set-up R, VCL, and Office Teams</p> <p><i>Readings:</i> Borgatti et al. (2009). Network Analysis in the Social Sciences</p>	
8/22	2	<p>Network Basics - Nodes, Ties, and Modes</p> <p><i>Agenda:</i> Lecture, Discussion, & Activities</p> <p><i>Readings:</i> Borgatti et al. (2013). Chapter 1: Introduction; Perry et al. (2018) Chapter 1: The Nature of Networks; and see Sakai</p>	
8/27	3	<p>Sociocentric, Egocentric & Qualitative Approaches</p> <p><i>Agenda:</i> Lecture & Discussion</p> <p><i>Readings:</i> Perry et al. (2018) Chapter 2: Sociocentric & Egocentric Approaches; Hollstein, B. (2011). Chapter 27: Qualitative Approaches; Borgatti et al. (2013). Chapter 15: Ego Networks; and see Sakai [1 article]</p>	DQ due 8/26 by 12:30 p.m.
8/29	4	<p>Basic Data Structures - Matrices, Edgelist, Nodlists</p> <p><i>Agenda:</i> Lab</p> <p><i>Readings:</i> Borgatti et al. (2013). Chapter 2: Mathematical Foundations; Borgatti et al. (2013). Chapter 5: Data Management (pp. 62-70); and see Sakai [1 article]</p>	Research Paper Ideas by 8/30 5 p.m.
9/3	5	<p>Foundations of Network Research in Communication</p> <p><i>Agenda:</i> Lecture & Discussion</p> <p><i>Readings:</i> See Sakai [~4 articles/book chapters]</p>	DQ due 9/2 by 12:30 p.m.
9/5	6	<p>Network Level Measures I - Descriptives, Density, & Components</p> <p><i>Agenda:</i> Lab</p> <p><i>Readings:</i> See Sakai [~2 articles]</p>	
9/10	7	<p>Network Theories & Research on Network Structures</p> <p><i>Agenda:</i> Lecture & Discussion</p> <p><i>Readings:</i> Borgatti et al. (2013). Chapter 9: Characterizing Whole Networks and see Sakai [~3 articles/book chapters]</p>	DQ due 9/9 by 12:30 p.m.
9/12	8	<p>Network-Level Measures II - Fragmentation & Centralization</p> <p><i>Agenda:</i> Lab</p> <p><i>Readings:</i> See Sakai [~2 articles]</p>	IRB App Due [if necessary]
9/17	9	<p>Network Theories & Research on Nodal Positions & Key Players</p> <p><i>Agenda:</i> Lecture & Discussion</p> <p><i>Readings:</i> Borgatti et al. (2013). Chapter 10: Centrality; Monge & Contractor (2003). Chapter 2: Network Concepts...; and see Sakai</p>	DQ due 9/16 by 12:30 p.m.

9/19	10	Node-Level Measures I - Centrality, Coreness, & Structural Holes <i>Agenda:</i> Lab <i>Readings:</i> See Sakai [~2 articles]	"Guerilla" Lit Review by 9/20 5 p.m.
9/24	11	Network Theories & Research on Groups & Network Composition <i>Agenda:</i> Lecture & Discussion <i>Readings:</i> Borgatti et al. (2013). Chapter 11: Subgroups; Perry et al. (2018) Chapter 7: Ego Network Composition & Structure; and see Sakai	DQ due 9/23 by 12:30 p.m.
9/26	12	Group-Level Measures I - Clusters, Cliques, & Subgroups <i>Agenda:</i> Lab <i>Readings:</i> Borgatti et al. (2013). Chapter 11: Subgroups and see Sakai	
10/1	13	Network Theories & Research from Secondary Data Sources <i>Agenda:</i> Lecture & Discussion <i>Readings:</i> See Sakai [~5 articles]	DQ due 9/30 by 12:30 p.m.
10/3	14	Structuring & Analyzing 2-mode, Affiliation, & Bipartite Graphs <i>Agenda:</i> Lab <i>Readings:</i> Borgatti et al. (2013). Chapter 13: Analyzing Two-Mode Data; and see Sakai [~2 articles]	Draft of RQs/Hs by 10/4 at 5 p.m.
10/8	15	Theories & Research using Node and Tie Attributes <i>Agenda:</i> Lecture & Discussion <i>Readings:</i> See Sakai [~5 articles]	DQ due 10/7 by 12:30 p.m.
10/10	16	Assigning & Analyzing Attribute Data <i>Agenda:</i> Lab <i>Readings:</i> See Sakai [~5 articles]	
10/15	17	Check-In Meetings <i>Agenda:</i> Please sign-up for an individual meeting with me.	Proposal 1st Draft by 10/16 at 5 p.m.
FALL BREAK OCTOBER 17-18			
10/22	18	Network Data Collection [Quant] <i>Agenda:</i> Lecture & Discussion <i>Readings:</i> Borgatti et al. (2013). Chapter 4: Data Collection; Perry et al. (2018) Chapter 3: Sampling, Data Collection Modes...; and Perry et al. (2018) Chapter 4: Methods for Elicity Alters...	DQ due 10/21 by 12:30 p.m.
10/24	19	Review Instruments & Tools [Quant] <i>Agenda:</i> Lab/Workshop <i>Readings:</i> Perry et al. (2018) Chapter 5: Gathering Data about Alters and see Sakai [~2 articles]	
10/29	20	Network Data Collection [Qual] <i>Agenda:</i> Lecture & Discussion <i>Readings:</i> See Sakai [~2 book chapters]	DQ due 10/28 by 12:30 p.m.

10/31	21	<p align="center">Review Instruments & Tools [Qual]</p> <p><i>Agenda:</i> Lab/Workshop <i>Readings:</i> See Sakai [~2 articles]</p>	Draft of Methods due 11/1 at 5 p.m.
11/5	22	<p align="center">Data Management: Restructuring Data</p> <p><i>Agenda:</i> Lab/Workshop <i>Readings:</i> Borgatti et al. (2013). Chapter 5: Data Management (again, all sect.)and see Sakai [~2 book chapters]</p>	Codebook/Interview Qs due 11/6 at 5
11/7	23	<p align="center">Reshaping Data Formats</p> <p><i>Agenda:</i> Lab/Workshop <i>Readings:</i> See Sakai [~2 working papers]</p>	
11/12	24	<p align="center">Analyzing Network Data: Network Hypothesis Testing</p> <p><i>Agenda:</i> Lecture & Discussion <i>Readings:</i> Borgatti et al. (2013). Chapter 8: Testing Hypotheses and see Sakai [~2 articles]</p>	DQ due 11/11 by 12:30 p.m.
11/14	25	<p align="center">Hypothesis Testing: Correlations, Regressions, & QAP</p> <p><i>Agenda:</i> Lab <i>Readings:</i> → Borgatti et al. (2013). Chapter 8: Testing Hypotheses and see Sakai</p>	Sampling Strategy due 11/15 at 5 p.m.
11/19	26	<p align="center">Network Visualizations: Guidelines, Ethics, & Best Practices</p> <p><i>Agenda:</i> Lecture & Discussion <i>Readings:</i> → Borgatti et al. (2013). Chapter 7: Visualization; Perry et al. (2018) Chapter 6: Visualizing Network Data; and see Sakai [~2 articles]</p>	DQ due 11/18 by 12:30 p.m.
11/21	27	<p align="center">Visualizing Network Data:</p> <p><i>Agenda:</i> Lab <i>Readings:</i> See Sakai [~2 articles]</p>	Instrument/Protocol due 11/22 at 5
11/26	28	<p align="center">Individual Consultations via Zoom</p> <p><i>Agenda:</i> Please sign-up for an individual meeting with me. <i>Notes:</i> <i>We will go over any data analysis questions you have or what you should be doing to put the final touches on your instrument or protocol.</i></p>	Draft of Results Section [if applicable]
THANKSGIVING BREAK NOVEMBER 27–29			
12/3	29	<p align="center">Future Directions of Communication Network Research</p> <p><i>Agenda:</i> Lecture & Discussion <i>Note:</i> This week we have an assigned discussion question: <i>Readings:</i> See Sakai [~5 articles that excite me about network research]</p>	DQ due 12/2 by 12:30 p.m. DQ: <i>What is the future of network research in the social sciences, particularly in communication and media research?</i>
12/6	30	<p align="center">Presentation of Research Papers/Proposals</p> <p><i>*Please note that because this is our final exam period and we are required to meet Friday, December 6 at 12 p.m.</i></p>	Final Presentation & Paper